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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,798	11/16/2000	Oren Rosenfeld	6727/0H935	3955

7590 03/14/2003
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EXAMINER

KOYAMA, KUMIKO C

ART UNIT PAPER NUMBER

2876

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/714,798

Applicant(s)

ROSENFELD, OREN

Examiner

Kumiko C. Koyama

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 and 42-72 is/are pending in the application.
- 4a) Of the above claim(s) 6, 16, 18, 41 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15, 17, 19-40, 43-46 and 48-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

1. Applicant's election **without** traverse of Figures 1, 6, 10 and 11 in Paper No. 8 is acknowledged.

Election/Restriction

2. The Applicant has elected Group II including Figures 1, 6, 10 and 11, and states that Claims 1-40 and 42-72 read on the elected invention. However, the examiner respectfully disagrees. Claims 6, 16, 18, 41 and 47 do not read on the Applicant's elected invention because Figures 1,6,10 and 11 does not show the specifics of the fuel cell structure. Claims 6, 16, 18, 41 and 47 read on Figures 2 and 3, which are non-elected species/invention.

Therefore, Claims 6, 16, 18, 41, 47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Objections

3. Claim 25 is objected to because of the following informalities:

Re claim 25, line 2: "and wherein said fuel tank" should be changed to --further comprising a fuel tank that--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7 and 31-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 7 recites the limitation "said communicator" in line 4. There is insufficient antecedent basis for this limitation in the claim. There is no explanation nor anything related to communication mentioned in neither claim 1 nor claim 5. The examiner respectfully requests the Applicant to either delete "said communicator" or clarify what "said communicator" is pointing to.

7. Re claim 31, line 6: The examiner respectfully requests the applicant to clarify if "said communicator" and "a data communicator" are referring to the same item. If they are referring to the same item, then "said communicator" should be changed to --a data communicator--, and "a data communicator" should be changed to --said data communicator--. Otherwise, the examiner respectfully requests the applicant to rephrase or replace with different words to clarify the difference. For examination purposes, the examiner has interpreted "said communicator" as same as "a data communicator."

Therefore, claims 7, 31 and claims dependent therefrom, claims 32-36, are indefinite.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 43, 51, 63-67 and 69-71 are rejected under 35 U.S.C. 102(e) as being anticipated by Brick et al (US 6,269,342).

Re claim 43: Brick teaches an electronic shelf tag 330 including an IR tag transceiver 338A for transmitting and receiving data and a receiver receiving IR transmissions 358A for communicating with electronic shelf tag 330 (col 12 lines 34-36 and 45-51, col 13 lines 15-18). Brick teaches shelf tags placed with in a flexible plastic casing and utilizes flexible plastic substrate in its fabrication, which as a whole is considered to be a flexible electronic shelf label.

Re claim 51: Brick teaches electronic shelf tags having an electronic display such as a liquid crystal display (LCD) (col 1 lines 56-57) and a hand-held apparatus that can be easily used to program the shelf tag by simply entering desired information to be displayed via an input device such as a keypad and interfacing the apparatus with the shelf tag to update display information. Brick also teaches that an apparatus and method for programming a shelf tag and a method taking inventory and updating a shelf tag in an integrated manner via a computer network, such as a micro cellular local area network (LAN) (col 2 lines 51+).

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Re claim 63, 64 and 65: Brick teaches that all of the shelf tags 330 receive the broadcast initiated by host computer 312 via their respective RF transceivers 338B and the display unit 340 is modified to display to reflect the received new price (col 13 lines 50-63). The host computer 312 individually broadcasts each new price and the respective tag IDs to all of the shelf tag 330, using access points 320A, 320B (col 13 lines 50-54). The access points includes transceiver devices for transmitting and receiving data via a wireless medium, such as RF (col 12 lines 9-13).

Although Brick fails to specifically disclose that the product information is supplied to the RF receiver, Brick teaches that Brick's invention relates to a programmable shelf tag along with an apparatus and method for programming the shelf tag and incorporating pricing and product information into a computer system for such purposes as inventory control, and updating pricing and product information throughout a facility in a fast and convenient manner (col 1 lines 10-17). Therefore, Brick inherently teaches that the product information may be supplied to the electronic shelf tag and therein to the electronic display via the RF receiver.

Re claim 66: Brick teaches a display unit 340 preferably being an LCD display, which is considered to be an unitary LCD display (col 12 lines 52-54).

Re claim 67: Brick further teaches that the shelf tags 330 receive the broadcast via their respective IR transceivers 338A (col 14 lines 17-20) and the display unit 340 is modified to reflect the received new prices (col 14 lines 22-24).

Although Brick fails to specifically disclose that the product information is supplied to the electronic display other than via IR receiver, Brick teaches that Brick's invention relates to a programmable shelf tag along with an apparatus and method for programming the shelf tag and

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incorporating pricing and product information into a computer system for such purposes as inventory control, and updating pricing and product information throughout a facility in a fast and convenient manner (col 1 lines 10-17). Therefore, Brick inherently teaches that the product information may be supplied to the electronic shelf tag and therein to the electronic display via the IR receiver.

Re claim 69: Brick teaches a hand-held apparatus that can be easily used to program the shelf tag by simply entering desired information to be displayed via an input device such as a keypad and interfacing the apparatus with the shelf tag to update display information. Brick also teaches that an apparatus/programming device and method for programming a shelf tag and a method taking inventory and updating a shelf tag in an integrated manner via a computer network, such as a micro cellular local area network (LAN) (col 2 lines 51+). Brick also teaches that the programming device receives acknowledge signal (col 14 lines 15-17).

Re claim 70: Brick teaches that the programming device is used in connection with computer network 310 and shelf tag 330. The host computer 312 individually broadcasts each new price and the respective tag IDs to programming device 350. The programming device broadcasts the new prices and tag IDs to all of the shelf tags 330, using IR transceiver 358A. (col 14 lines 3-15).

Re claim 71: Brick teaches shelf tags placed with in a flexible plastic casing and utilizes flexible plastic substrate in its fabrication, which as a whole is considered to be a flexible electronic shelf label (col 2 lines 36-40).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kump et al (US 6,119,990) in view Goodwin, III (US 5,847,378).

Kump discloses a housing A for holding an electronic price label C that comprises a body 10 having a transparent front wall/protective cover layer 12 (col 4 lines 9-15), which holds the EPL in place and protects it from damage. The price label includes a casing 76 with a front wall and an LCD display 78 (col 5 lines 1-5).

Kump fails to disclose an at least partially transparent intermediate layer formed over the LCD display and substantially filling a space between the LCD display and the protective at least partially transparent cover layer.

Goodwin discloses an electronic price label 10 including a liquid crystal display (LCD) 14 and an overlay 22, which is described as transparent and is served to protect LCD 14 from scratching (col 2 lines 24-25, col 3 lines 22-30).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Goodwin to the teachings of Kump and provide a transparent intermediate layer formed over the LCD display in order to protect the LCD from scratches and other damages. When the teachings of Goodwin is integrated into

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Kump's teachings, the electronic label is held within Kump's housing, which results in the transparent intermediate layer positioned and filling a space between the LCD display and the front wall/protective layer 12.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kump as modified by Goodwin as applied to claim 1 above, and further in view of Habing et al (US 6,211,934).

Kump as modified by Goodwin have been discussed above.

Kump as modified by Goodwin fail to teach that the at least partially transparent intermediate layer has an index of refraction, which is selected so as to minimize reflection at interfaces between the at least partially transparent intermediate layer and both of the LCD display and the protective at least partially transparent cover layer.

Habing teaches that a passive transparent substrate 20 is positioned before the LCD panel 40 to protect the LCD panel 40. An anti-reflective material 10 is applied to the exterior surface 24 of transparent substrate 20 to minimize specular reflections and maximize visible transmission. The anti-reflective material 10 reduces the index of refraction mismatch from the air to the transparent substrate of the LCD panel 40 and is deposited at a predetermined thickness, which minimizes the reflection in a visible spectrum (col 5 lines 5-20).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Habing to the teachings of Kump as modified by Goodwin in order to maximize visibility of the LCD display along with protecting the display to reduce the possibility of customers misreading prices from the label and provide better service to the customer.

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13. Claims 3, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kump as modified by Goodwin and Kump as modified by Goodwin and Habing as applied to claim 1 and 2 above, and further in view of Roberts (US 4,710,820). Kump/Goodwin and Kump/Goodwin/Habing have been discussed above.

Re claim 3, 4 and 8: Kump/Goodwin/Habing fail to teach that the at least partially transparent intermediate layer is located with respect to the LCD display and to the protective at least partially transparent cover layer so as to substantially eliminate air gaps therebetween. Kump/Goodwin/Habing also fails to teach that index of refraction is identical to the index of refraction of at least one of the LCD display and the protective at least partially transparent cover layer.

Roberts teaches an invention to eliminate air gaps between a projection television receiver CRT and an associated lens assembly using a single, highly transparent, refractive index-matched optical coupling pad (col 2 lines 50-55). The refractive index is matched to those of CRT faceplate and lens assembly (col 6 lines 18-23).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Roberts to the teachings of Kump/Goodwin/Habing in order to reduce glares and improve the image quality for better view of the LCD display, which provides the customer with an accurate price of the product.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kump as modified by Goodwin as applied to claim 1 above, and further in view of Mitchell et al (US 6,259,971).

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Kump as modified by Goodwin have been discussed above. Kump as modified by Goodwin fail to disclose that the electronic shelf label comprises at least one fuel cell power the LCD display.

Mitchell discloses a fuel cell 802 capable of powering a complete portable computer system, which also includes a display (col 3 lines 38-40 and lines 50-52).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Mitchell to the teachings of Kump as modified by Goodwin because fuel cells can avoid the lifetime constraints of non-rechargeable batteries while also avoiding the degradation due to recharging, therefore fuel cells provide a reliable power source without the worry of changing batteries or purchasing batteries, which saves time and money.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kump as modified by Goodwin and Mitchell as applied to claim 5 above, and further in view of Hockaday (US 6,326,097). Kump/Goodwin/Mitchell have been discussed above.

Kump/Goodwin/Mitchell fail to disclose a fuel cell powering the LCD display includes a fuel tank, filling generally the volume of the housing not occupied by the display and the communicator.

However, Hockaday teaches a fuel cell including a fuel tank 33 and filling up the volume that is not occupied by other components (Fig 6A and Fig 6B).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Kump/Goodwin/Mitchell in order to provide workable and good performing fuel cell and design

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structure so that the fuel cell and other components of the device do not interfere with each other's performances.

16. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Kump as modified by Goodwin and Habing as applied to claim 2 above, and further in view of Flint (US 3,698,795). Kump/Goodwin/Habing have been discussed above.

Kump/Goodwin/Habing fails to teach that the index of refraction varies from on surface of the intermediate layer to an opposite surface thereof.

Flint teaches that a glassy transparent plate over one surface of the ruled film providing a material of different index of refraction over that one surface than over the other surface (col 2 lines 2-6).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Flint to the teachings of Kump/Goodwin/Habing in order to provide an electronic shelf label with clear visibility of the price and information from the liquid crystal display, but at the same time providing protection and guard from the liquid crystal display being damaged.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher (US 6,011,487) in view of Faul et al (US 6,094,007).

Plocher teaches a system and method of locating wireless devices, where such devices include electronic price labels (EPL), using IR communications (col 1 lines 26-33). Plocher teaches a transceiver 11 that transmits and receives messages from wireless communication device/EPL 22 (col 2 lines 31-33) and receivers 14 to receive messages from wireless communication device/EPL 22 (col 2 lines 41-48). Receivers 14 each include a signal strength

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determining circuit 16, a receiving sensor 24, and amplifier 26. The receiving sensor may be an IR sensor (col 2 lines 48-52).

Plocher fails to teach that the receiver includes a non-IR visible light sensor and a circuitry for employing an output of the non-IR visible light sensor for reducing interference in a signal band sensed by the IR sensor.

Faul teaches that light with wavelength in the visible spectrum, is typically filtered out by the optical sensor(s) to reduce interference with the infrared radiation (col 1 lines 67+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Faul to the teachings of Plocher in order to consolidate the receiver and the non-IR visible light sensor/optical sensor to obtain a more clear defining and accurate data, so that wrong price or message is not displayed onto the electronic price labels.

18. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher as modified by Faul as applied to claim 10 above, and further in view of Kump and Goodwin. Plocher as modified by Faul has been discussed above.

Plocher as modified by Faul fails to teach an electronic shelf label comprising an LCD display, a housing including a protective at least partially transparent cover layer disposed over the LCD display and in spaced relationship thereto and an at least partially transparent intermediate layer formed over the LCD display and substantially filling a space between the LCD display and the protective at least partially transparent cover layer.

Kump discloses a housing A for holding an electronic price label C that comprises a body 10 having a transparent front wall/protective cover layer 12 (col 4 lines 9-15), which holds the

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EPL in place and protects it from damage. The price label includes a casing 76 with a front wall and an LCD display 78 (col 5 lines 1-5).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Kump to the teachings of Plocher as modified by Faul because price labels contain fragile parts, such as LCD and label housing, so therefore by applying such modification, it protects the LCD and the housing from being damaged or cracked, which provides customers better view of the display and saves cost since there will be less labels to replace.

Plocher as modified by Faul and Kump fails to disclose an at least partially transparent intermediate layer formed over the LCD display and substantially filling a space between the LCD display and the protective at least partially transparent cover layer.

Goodwin discloses an electronic price label 10 including a liquid crystal display (LCD) 14 and an overlay 22, which is described as transparent and is served to protect LCD 14 from scratching (col 2 lines 24-25, col 3 lines 22-30).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Goodwin to the teachings of Kump and provide a transparent intermediate layer formed over the LCD display in order to protect the LCD from scratches and other damages. When the teachings of Goodwin is integrated into Kump's teachings, the electronic label is held within Kump's housing, which results in the transparent intermediate layer positioned and filling a space between the LCD display and the front wall/protective layer 12.

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19. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher as modified by Faul, Kump and Goodwin as applied to claim 11 above, and further in view of Habing. Plocher/Faul/Kump/Goodwin has been discussed above.

Plocher/Faul/Kump/Goodwin fail to teach that the at least partially transparent intermediate layer has an index of refraction, which is selected so as to minimize reflection at interfaces between the at least partially transparent intermediate layer and both of the LCD display and the protective at least partially transparent cover layer.

Habing teaches that a passive transparent substrate 20 is positioned before the LCD panel 40 to protect the LCD panel 40. An anti-reflective material 10 is applied to the exterior surface 24 of transparent substrate 20 to minimize specular reflections and maximize visible transmission. The anti-reflective material 10 reduces the index of refraction mismatch from the air to the transparent substrate of the LCD panel 40 and is deposited at a predetermined thickness, which minimizes the reflection in a visible spectrum (col 5 lines 5-20).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Habing to the teachings of Plocher/Faul/Kump/Goodwin in order to maximize visibility of the LCD display along with protecting the display to reduce the possibility of customers misreading prices from the label and provide better service to the customer.

20. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher as modified by Faul, Kump and Goodwin as applied to claim 11 above, and further in view of Roberts. Plocher/Faul/Kump/Goodwin have been discussed above.

Re claim 13 and 14: Kump/Goodwin/Habing fail to teach that the at least partially transparent intermediate layer is located with respect to the LCD display and to the protective at least partially transparent cover layer so as to substantially eliminate air gaps therebetween.

Roberts teaches an invention to eliminate air gaps between a projection television receiver CRT and an associated lens assembly using a single, highly transparent, refractive index-matched optical coupling pad (col 2 lines 50-55). The refractive index is matched to those of CRT faceplate and lens assembly (col 6 lines 18-23).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Roberts to the teachings of Plocher/Faul/Kump/Goodwin in order to reduce glares and improve the image quality for better view of the LCD display, which provides the customer with an accurate price of the product.

21. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher as modified by Faul and Plocher as modified by Faul, Kump and Goodwin as applied to claim 10 and 11 above, and further in view of Mitchell. Plocher as modified by Faul and Plocher/Faul/Kump/Goodwin have been discussed above.

Plocher as modified by Faul and Plocher/Faul/Kump/Goodwin fail to disclose that the electronic shelf label comprises at least one fuel cell power the LCD display.

Mitchell discloses a fuel cell 802 capable of powering a complete portable computer system, which also includes a display (col 3 lines 38-40 and lines 50-52).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Mitchell to the teachings of Plocher as modified by Faul and Plocher/Faul/Kump/Goodwin because fuel cells can avoid the lifetime

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constraints of non-rechargeable batteries while also avoiding the degradation due to recharging, therefore fuel cells provide a reliable power source without the worry of changing batteries or purchasing batteries, which saves time and money.

22. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher as modified by Faul and Mitchell, and Plocher as modified by Faul, Kump, Goodwin and Mitchell as applied to claim 15 and 17 above, and further in view of Hockaday.

Plocher/Faul/Mitchell and Plocher/Faul/Kump/Goodwin/Mitchell have been discussed above.

Plocher/Faul/Mitchell and Plocher/Faul/Kump/Goodwin/Mitchell fail to disclose a fuel cell powering the LCD display includes a fuel tank, filling generally the volume of the housing not occupied by the display and the communicator.

However, Hockaday teaches a fuel cell including a fuel tank 33 and filling up the volume that is not occupied by other components (Fig 6A and Fig 6B).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Plocher/Faul/Mitchell and Plocher/Faul/Kump/Goodwin/Mitchell in order to provide workable and good performing fuel cell and design structure so that the fuel cell and other components of the device do not interfere with each other's performances.

23. Claims 21 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman et al (US 5,467,474) in view of Mitchell.

Ackerman teaches an electronic pricing system having labels 15 including a case 90, a liquid crystal type display, and a light emitting diode (LED) 6 (col 3 lines 57-65). Ackerman also teaches that the messages from computer 11 through data wire 22b and 22 a to processor 63 may

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contain price information such as the price of goods, price per unit of goods, etc. Upon receiving such messages in RAM 67, the program therein extracts the price information, stores it in EEPROM 70, and provides it to LCD driver 69. This driver displays the price or other information on the LCD 61.

Ackerman fails to teach a fuel cell powering the electrically driven display and the at least one electrically powered illuminator.

Mitchell discloses a fuel cell 802 capable of powering a complete portable computer system, which also includes a display (col 3 lines 38-40 and lines 50-52).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Mitchell to the teachings of Ackerman because fuel cells can avoid the lifetime constraints of non-rechargeable batteries while also avoiding the degradation due to recharging, therefore fuel cells provide a reliable power source without the worry of changing batteries or purchasing batteries, which saves time and money.

24. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell as applied to claim 21 above, and further in view of Sejzer (US 5,243,504). Ackerman as modified by Mitchell have been discussed above.

Ackerman as modified by Mitchell fails to disclose that the one electrically powered illuminator and the electrically driven display have an average lifetime without requiring repowering of at least six months.

Sejzer teaches that the blinking circuit 19 preferably has an operating lifetime with a built-in battery of preferably six months (col 4 lines 16-20).

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Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Sejzer to the teachings of Ackerman as modified by Mitchell because it is important that the display and illuminator is kept updated and lighted until the item is sold, which may take a period of time, for the customer to see.

25. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell as applied to claim 21 above, and further in view of Yao et al (US 4,294,891). Ackerman as modified by Mitchell have been discussed above.

Ackerman as modified by Mitchell fails to disclose that the at least one fuel cell has an average mean power output of less than approximately 50 microwatts.

Yao teaches that the fuel cell delivered a constant power output of four microwatts (col 11 lines 1-2).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Yao to the teachings of Ackerman as modified by Mitchell in order to provide enough power to the illuminator and display to illuminate, but at the same time it must be within a sufficient range in order to avoid destruction or damage of the circuit utilized inside the electronic shelf label.

26. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell as applied to claim 21 above, and further in view of Maile et al (US 6,238,813). Ackerman as modified by Mitchell have been discussed above.

Ackerman as modified by Mitchell fails to disclose that at least one fuel cell has an average peak power output of less than approximately 3 milliwatt.

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Maile teaches a battery system providing a peak power on the order of 100 to 200 microwatts. 100 to 200 microwatts is 0.1 to 0.2 milliwatts, which averages out to less than 3 milliwatt.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Maile to the teachings of Ackerman as modified by Mitchell in order to create a low powered electronic shelf label, which provides a longer lasting shelf label and does not consume as much power source so it does not require frequent refueling of the fuel tank.

27. Claims 25, 26 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell as applied to claim 21 above, and further in view of Hockaday. Ackerman as modified by Mitchell have been discussed above.

Re claim 25 and 62: Ackerman as modified by Mitchell fails to teach that the fluid tank is fluid refuelable without requiring dismounting of the housing from a mounting location.

Hockaday teaches that a fuel tank having a refillable port 41, with a built-in valve that opens for refueling, is located on the side of the trickle charger 121 (col 8 lines 57-59, FIG 7A).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman and locate a refillable port on the side of the electronic shelf label so that it does not require any dismounting nor moving of the electronic shelf label, which takes less total time to refuel the tank and reduces the risk of causing damage to the electronic shelf label by dropping it.

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Re claim 26: Ackerman as modified by Mitchell fails to teach that the at least fuel storage element of the at least one fuel cell is replaceable without requiring dismounting of the housing from a mounting location.

Hockaday teaches that a fuel tank is inserted in a fuel cavity as shown in Fig 6B and is removable as well as able to fit into the cavity without any distortion to the cell phone body itself.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman as modified by Mitchell and place a fuel tank into a cavity from outside of the body so that there is no requirement to distort the body so that the replacing of the fuel tank can be done easily and in a faster manner, which inherently may also avoid the dismounting of body from the mounting location.

28. Claims 27, 29, 30, 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell as applied to claim 21 and 37 above, and further in view of Roberts. Ackerman as modified by Mitchell have been discussed above.

Ackerman as modified by Mitchell fail to teach that the at least partially transparent intermediate layer is located with respect to the LCD display and to the protective at least partially transparent cover layer so as to substantially eliminate air gaps therebetween. Ackerman as modified by Mitchell also fails to teach that index of refraction is identical to the index of refraction of at least one of the LCD display and the protective at least partially transparent cover layer.

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Roberts teaches an invention to eliminate air gaps between a projection television receiver CRT and an associated lens assembly using a single, highly transparent, refractive index-matched optical coupling pad (col 2 lines 50-55). The refractive index is matched to those of CRT faceplate and lens assembly (col 6 lines 18-23).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Roberts to the teachings of Ackerman as modified by Mitchell in order to reduce glares and improve the image quality for better view of the LCD display, which provides the customer with an accurate price of the product.

29. Claims 28 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Mitchell and Roberts as applied to claim 27 and 38 above, and further in view of Habing. Ackerman/Mitchell/Roberts have been discussed above.

Ackerman/Mitchell/Roberts fail to teach that the at least partially transparent intermediate layer has an index of refraction, which is selected so as to minimize reflection at interfaces between the at least partially transparent intermediate layer and both of the LCD display and the protective at least partially transparent cover layer.

Habing teaches that a passive transparent substrate 20 is positioned before the LCD panel 40 to protect the LCD panel 40. An anti-reflective material 10 is applied to the exterior surface 24 of transparent substrate 20 to minimize specular reflections and maximize visible transmission. The anti-reflective material 10 reduces the index of refraction mismatch from the air to the transparent substrate of the LCD panel 40 and is deposited at a predetermined thickness, which minimizes the reflection in a visible spectrum (col 5 lines 5-20).

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Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Habing to the teachings of Ackerman/Mitchell/Roberts in order to maximize visibility of the LCD display along with protecting the display to reduce the possibility of customers misreading prices from the label and provide better service to the customer.

30. Claims 31, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman in view of Hockaday.

Ackerman teaches an electronic pricing system having labels 15 including a case 90, a liquid crystal type display, and a light emitting diode (LED) 6 (col 3 lines 57-65). Ackerman also teaches that the messages from computer 11 through data wire 22b and 22 a to processor 63 may contain price information such as the price of goods, price per unit of goods, etc. Upon receiving such messages in RAM 67, the program therein extracts the price information, stores it in EEPROM 70, and provides it to LCD driver 69. This driver displays the price or other information on the LCD 61.

Ackerman fails to teach a fuel cell powering the electrically driven display and at least one fuel cell including a fuel tank, filling generally the volume of the housing not occupied by the display and the communicator.

Hockaday teaches a fuel cell 32 including a fuel tank 33 filling generally the volume of the housing of the cell phone not occupied by the display and the cell phone, serving as a communicator (FIG 6B).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman

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because fuel cells can avoid the lifetime constraints of non-rechargeable batteries while also avoiding the degradation due to recharging, therefore fuel cells provide a reliable power source without the worry of changing batteries or purchasing batteries, which saves time and money. Furthermore, it would have been obvious to fill the volume of the housing not occupied by the display and the communicator in order to make the label as compact as possible so that it does not interfere with the product when displayed on the shelf, and also causes to utilize less material for the housing, which will result in less cost for production of the labels.

Re claim 35: Ackerman fails to teach that the fluid tank is fluid refuelable without requiring dismounting of the housing from a mounting location.

Hockaday teaches that a fuel tank having a refillable port 41, with a built-in valve that opens for refueling, is located on the side of the trickle charger 121 (col 8 lines 57-59, FIG 7A).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman as modified by Mitchell and locate a refillable port on the side of the electronic shelf label so that it does not require any dismounting nor moving of the electronic shelf label, which takes less total time to refuel the tank and reduces the risk of causing damage to the electronic shelf label by dropping it.

Re claim 36: Ackerman fails to teach that the at least fuel storage element of the at least one fuel cell is replaceable without requiring dismounting of the housing from a mounting location.

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Hockaday teaches that a fuel tank is inserted in a fuel cavity as shown in Fig 6B and is removable as well as able to fit into the cavity without any distortion to the cell phone body itself.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman and place a fuel tank into a cavity from outside of the body so that there is no requirement to distort the body so that the replacing of the fuel tank can be done easily and in a faster manner, which inherently may also avoid the dismounting of body from the mounting location.

31. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Hockaday as applied to claim 31 above, and further in view of Sejzer (US 5,243,504). Ackerman as modified by Hockaday have been discussed above.

Ackerman as modified by Hockaday fails to disclose that the one electrically powered illuminator and the electrically driven display have an average lifetime without requiring repowering of at least six months.

Sejzer teaches that the blinking circuit 19 preferably has an operating lifetime with a built-in battery of preferably six months (col 4 lines 16-20).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Sejzer to the teachings of Ackerman as modified by Hockaday because it is important that the display and illuminator is kept updated and lighted until the item is sold, which may take a period of time, for the customer to see.

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32. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Hockaday as applied to claim 31 above, and further in view of Yao et al (US 4,294,891). Ackerman as modified by Hockaday have been discussed above.

Ackerman as modified by Hockaday fails to disclose that the at least one fuel cell has an average mean power output of less than approximately 50 microwatts.

Yao teaches that the fuel cell delivered a constant power output of four microwatts (col 11 lines 1-2).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Yao to the teachings of Ackerman as modified by Hockaday in order to capable of providing sufficient power to the illuminator and display to illuminate, but at the same time it must be within a sufficient range in order to avoid destruction or damage of the circuit utilized inside the electronic shelf label.

33. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman as modified by Hockaday as applied to claim 31 above, and further in view of Maile.

Ackerman as modified by Hockaday fails to disclose that at least one fuel cell has an average peak power output of less than approximately 3 milliwatt.

Maile teaches a battery system providing a peak power on the order of 100 to 200 microwatts. 100 to 200 microwatts is 0.1 to 0.2 milliwatts, which averages out to less than 3 milliwatt.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Maile to the teachings of Ackerman as modified by Mitchell in order to create a low powered electronic shelf label, which provides a

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longer lasting shelf label and does not consume as much power source so it does not require frequent refueling of the fuel tank.

34. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plocher in view of Komaki (US 4,704,003).

Plocher teaches a system and method of locating wireless devices, where such devices include electronic price labels (EPL), using IR communications (col 1 lines 26-33). Plocher teaches a transceiver 11 that transmits and receives messages from wireless communication device/EPL 22 (col 2 lines 31-33) and receivers 14 to receive messages from wireless communication device/EPL 22 (col 2 lines 41-48). Receivers 14 each include a signal strength determining circuit 16, a receiving sensor 24, and amplifier 26. The receiving sensor may be an IR sensor (col 2 lines 48-52).

Plocher fails to teach a flexible electrically driven display and a flexible power supply.

Komaki teaches a flexible liquid crystal display 5 and a flexible power supply (col 2 lines 62-66).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Komaki to the teachings of Plocher because flexible display and flexible power supply avoids damage because it does not have the hardness that easily causes cracks and fractures, and the flexibility also cooperates with other elements of the label to provides compactness utilizing the flexibility.

35. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brick as applied to claim 43 above, further in view of Plocher and Faul.

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Brick fails to teach that receiver includes an IR sensor, a non-IR visible light sensor and a circuitry for employing an output of the non-IR visible light sensor for reducing interference in a signal band sensed by the IR sensor.

Plocher teaches a system and method of locating wireless devices, where such devices include electronic price labels (EPL), using IR communications (col 1 lines 26-33). Plocher teaches a transceiver 11 that transmits and receives messages from wireless communication device/EPL 22 (col 2 lines 31-33) and receivers 14 to receive messages from wireless communication device/EPL 22 (col 2 lines 41-48). Receivers 14 each include a signal strength determining circuit 16, a receiving sensor 24, and amplifier 26. The receiving sensor may be an IR sensor (col 2 lines 48-52).

Plocher fails to teach that the receiver includes a non-IR visible light sensor and a circuitry for employing an output of the non-IR visible light sensor for reducing interference in a signal band sensed by the IR sensor.

Faul teaches that light with wavelength in the visible spectrum, is typically filtered out by the optical sensor(s) to reduce interference with the infrared radiation (col 1 lines 67+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Faul to the teachings of Plocher in order to consolidate the receiver and the non-IR visible light sensor/optical sensor to obtain a more clear defining and accurate data, so that wrong price or message is not displayed onto the electronic price labels.

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36. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brick as modified by Plocher and Faul as applied to claim 44 above, and further in view of Komaki.

Brick/Plocher/Faul have been discussed above.

Brick/Plocher/Faul fail to teach a flexible electrically driven display and a flexible power supply.

Komaki teaches a flexible liquid crystal display 5 and a flexible power supply (col 2 lines 62-66).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Komaki to the teachings of Brick/Plocher/Faul because flexible display and flexible power supply avoids damage because it does not have the hardness that easily causes cracks and fractures, and the flexibility also cooperates with other elements of the label to provides compactness utilizing the flexibility.

37. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brick as modified by Plocher, Faul, and Komaki as applied to claim 45 above, and further in view of Mitchell.

Brick/Plocher/Faul/Komaki have been discussed above.

Brick/Plocher/Faul/Komaki fail to disclose that the electronic shelf label comprises at least one fuel cell power the LCD display.

Mitchell discloses a fuel cell 802 capable of powering a complete portable computer system, which also includes a display (col 3 lines 38-40 and lines 50-52).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Mitchell to the teachings of Brick/Plocher/Faul/Komaki because fuel cells can avoid the lifetime constraints of non-

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rechargeable batteries while also avoiding the degradation due to recharging, therefore fuel cells provide a reliable power source without the worry of changing batteries or purchasing batteries, which saves time and money.

38. Claims 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brick as modified by Plocher, Faul, Komaki and Mitchell as applied to claim 46 above, and further in view of Hockaday. Brick/Plocher/Faul/Komaki/Mitchell have been discussed above.

Re claim 48: Brick/Plocher/Faul/Komaki/Mitchell fail to disclose a fuel cell powering the LCD display includes a fuel tank.

However, Hockaday teaches a fuel cell including a fuel tank 33 and filling up the volume that is not occupied by other components (Fig 6A and Fig 6B).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Brick/Plocher/Faul/Komaki/Mitchell in order to provide workable and good performing fuel cell and design structure so that the fuel cell and other components of the device do not interfere with each other's performances.

Re claim 50: Brick/Plocher/Faul/Komaki/Mitchell fails to teach that the fluid tank is fluid refuelable without requiring dismounting of the housing from a mounting location.

Hockaday teaches that a fuel tank having a refillable port 41, with a built-in valve that opens for refueling, is located on the side of the trickle charger 121 (col 8 lines 57-59, FIG 7A).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Hockaday to the teachings of Ackerman and locate a refillable port on the side of the electronic shelf label so that it does not require any

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dismounting nor moving of the electronic shelf label, which takes less total time to refuel the tank and reduces the risk of causing damage to the electronic shelf label by dropping it.

39. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brick as modified by Plocher, Faul, Komaki and Mitchell as applied to claim 46 above, and further in view of Maile. Brick/Plocher/Faul/Komaki/Mitchell have been discussed above.

Brick/Plocher/Faul/Komaki/Mitchell fails to disclose that at least one fuel cell has an average peak power output of less than approximately 3 milliwatt.

Maile teaches a battery system providing a peak power on the order of 100 to 200 microwatts. 100 to 200 microwatts is 0.1 to 0.2 milliwatts, which averages out to less than 3 milliwatt.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Maile to the teachings of Ackerman as modified by Mitchell in order to create a low powered electronic shelf label, which provides a longer lasting shelf label and does not consume as much power source so it does not require frequent refueling of the fuel tank.

40. Claims 52-61, 68 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brick in view of Halperin et al (US 6,105,004 as cited by the Applicant).

Re claim 52, 58, 59 and 61: Brick teaches an electronic shelf tag 330 including an IR tag transceiver 338A for transmitting and receiving data (col 12 lines 34-36 and 45-51, col 13 lines 15-18), and electronic shelf tags having an electronic display such as a liquid crystal display (LCD) (col 1 lines 56-57). Brick teaches a hand-held apparatus that can be easily used to program the shelf tag by simply entering desired information to be displayed via an input device

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such as a keypad and interfacing the apparatus with the shelf tag to update display information. Brick also teaches that an apparatus/programming device and method for programming a shelf tag and a method taking inventory and updating a shelf tag in an integrated manner via a computer network, such as a micro cellular local area network (LAN) (col 2 lines 51+). Brick also teaches that the programming device receives acknowledge signal (col 14 lines 15-17).

Brick fails to teach that the transmitter being characterized in that it transmits information including both price and product description. Brick fails to teach that the product information entry device is operative to directly write product information onto the electronic display.

Halperin teaches that the electronic shelf label transmits a signal containing the product ID and its price (col 6 lines 5-7). Halperin also teaches that a portable device 6 has a direct communication 10 with the electronic shelf label 7 (fig 1).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Halperin to the teachings of Brick in order to confirm that the price and product details sent to the shelf label was correct to make sure that the shelf label is displaying the correct price so that the customer may observe the correct pricing information.

Re claim 53: Brick teaches that the display unit 340 displays a product price and/or other product information (e.g., a product name or advertising slogan) (col 12 lines 52-54).

Re claim 54: Brick teaches that the programming device 350 sequentially broadcasts the new prices and tag IDs to all of the shelf tags 330 using IR transceiver 358A and all of the shelf tags 330 receive the broadcast via their respective IR transceivers 338A. Brick also teaches that the display unit 340 displays a product price and/or other product information (e.g., a product

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name or advertising slogan) (col 12 lines 52-54). Therefore, it would have been obvious to receive other product information as well.

Re claim 55: Brick teaches a display unit 340 preferably being an LCD display, which is considered to be an unitary LCD display (col 12 lines 52-54).

Re claim 56: Brick teaches that the IR transceiver receives the new prices (col 14 lines 14-20). Brick teaches that the shelf tags 330 receive the broadcast initiated by the host computer 312 via their respective RF transceivers 338B. Then after authenticating the tag ID, the control unit 332 sends signals to the display unit 340 to modify the display to reflect the received new price (col 13 lines 55+).

Brick fails to specifically disclose that the product information is supplied to the electronic display other than via IR receiver.

However, Brick teaches that Brick's invention relates to a programmable shelf tag along with an apparatus and method for programming the shelf tag and incorporating pricing and product information into a computer system for such purposes as inventory control, and updating pricing and product information throughout a facility in a fast and convenient manner (col 1 lines 10-17).

Therefore, Brick inherently teaches that the product information may be supplied to the electronic shelf tag and therein to the electronic display via the RF receiver.

Re claim 57 and 68: Bricks teachings have been discussed above (Re claim 56 and Re claim 64).

Brick fails to teach that the electronic display comprises at least two separate LCD displays, at least one of which is operative to display price information received via said receiver

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and at least one of which is operative to display product information received other than via the receiver.

Halperin teaches two separate displays 22A and 23 (Fig 2). Halperin also teaches that 23 may be electronic (col 3 lines 45-49).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Halperin to the teachings of Brick because it gives the capability of making changes to the product information without changing or sending the same price information. The modification also works vice versa. Such modification avoids sending duplicate information and reloading the display information to the display devices, which saves time and power source.

Re claim 60: Brick teaches shelf tags placed with in a flexible plastic casing and utilizes flexible plastic substrate in its fabrication, which as a whole is considered to be a flexible electronic shelf label (col 2 lines 36-40).

Re claim 72: Brick's teaching have been discussed in claim 69.

Brick fails to teach that the product information entry device is operative to directly write product information onto the electronic display.

Halperin also teaches that a portable device 6 has a direct communication 10 with the electronic shelf label 7 (fig 1).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Halperin to the teachings of Brick and directly write product information onto the electronic display in order to send the correct pricing information/data without any corruption to the data cause by indirect transferring of the data.

Conclusion

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Johnsen, U.S. Patent No. 5,151,684, discloses an electronic inventory label and security apparatus.

Waterhouse et al., U.S. Patent No. 5,374,815, discloses a technique for locating electronic labels in an electronic price display system.

Failing, Jr. et al., U.S. Patent No. 5,448,226, discloses a shelf talker management system.

Caldwell et al., U.S. Patent No. 5,465,085, discloses a retail store display system.

Goodwin, III, U.S. Patent No. 5,473,146, discloses a system and method for connecting product information with electronic shelf displays.

Marvin et al., U.S. Patent No. 5,575,100, discloses an electronic shelf label protective cover.

Grat, U.S. Patent No. 5,635,915, discloses a transmission system.

Faris, U.S. Patent No. 5,828,427, discloses a computer-based image display systems having direct and projection modes of viewing.

Teicher et al., U.S. Patent No. 5,880,449, discloses system and method for providing a store customer with personally associated prices for selected items.

Campo, U.S. Patent No. 5,910,653, discloses a shelf tag with ambient light detector.

Marvin, U.S. Patent No. 6,069,596, discloses an electronic shelf label mounting system.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kumiko C. Koyama whose telephone number is 703-305-5425.

The examiner can normally be reached on Monday-Friday 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

kck
March 9, 2003

Diane I. Lee
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Primary Examiner
GAU 2876